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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/537,893

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Gilles Mathieu

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EXAMINER

LE, TOAN M

ART UNIT

PAPER NUMBER

2863

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/24/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary**Application No.**

10/537,893

Applicant(s)

MATHIEU ET AL.

Examiner

Toan M. Le

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

The drawings were received on 11/7/06. These drawings of Figures 1 and 1A are accepted.

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because Figures 2-8 have copy marks. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-19 are rejected under 35 U.S.C. 101 rejection because the claimed invention is directed to non-statutory subject matter.

The claims are directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEO 2106), the claims must have either physical transformation and/or a useful, concrete and tangible result. Although, the claims appear useful and concrete, there does not appear to be a tangible result claimed. Merely, transforming the two-dimensional data sets into three-dimensional images using the Hough transform; deriving two dimensional curves from the three-dimensional images by the application of the Hough transform to depth derivatives of sensor signals, generated by sensors; deriving an offset from

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the two dimensional curves; and depth matching the two dimensional data sets to each other by applying the offset to said two dimensional data sets as in claim 1 or combining individual signals making up the respective two-dimensional data set for each two-dimensional data set of the plurality of data sets to create an averaged signal; processing averaged signals, each corresponding to one two-dimensional data set, to calculate an offset that correlates the averaged signals; and depth matching the two-dimensional data sets to each other by applying the calculated offset to the two-dimensional data sets as in claim 6 would not appear to be sufficient to constitute a tangible result, since the outcome of the transforming, deriving, combining, processing, and depth matching steps have not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6-7 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kerzner (US Patent No. 4,517,835).

Referring to claim 6, Kerzner discloses a method for matching a plurality of data sets from boreholes or core sections, the data sets being obtained from sensors are two-dimensional data sets and are indicative of a boundary, or interface of earth formations and of dip in the vicinity of the borehole, the method for depth matching comprising:

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combining individual signals making up the respective two-dimensional data set for each two-dimensional data set of the plurality of data sets 23A, 24A, 25A, and 26A to create an averaged signal (figure 1; col. 6, lines 56-68 to col. 7, lines 1-68 to col. 8, lines 1-16);

processing averaged signals, each corresponding to one two-dimensional data set, to calculate an offset that correlates the averaged signals (col. 8, lines 50-66 to col. 9, lines 1-3); and

depth matching the two-dimensional data sets to each other by applying the calculated offset to the two-dimensional data sets (col. 11, lines 30-64).

As to claim 7, Kerzner discloses a method for matching a plurality of data sets from boreholes or core sections, the data sets being obtained from sensors are two-dimensional data sets and are indicative of a boundary, or interface of earth formations and of dip in the vicinity of the borehole, wherein the averaged signals are obtained by determining an average of the sensor signals along the bedding dip for a given depth in the borehole (col. 7, lines 1-17; col. 9, lines 4-8).

Referring to claim 16, Kerzner discloses a method for matching a plurality of data sets from boreholes or core sections, the data sets being obtained from sensors are two-dimensional data sets and are indicative of a boundary, or interface of earth formations and of dip in the vicinity of the borehole, wherein two-dimensional data sets to be depth matched are obtained at the same time by sensors that are vertically spaced from each other longitudinally along the borehole (figure 1).

As to claim 17, Kerzner discloses a method for matching a plurality of data sets from boreholes or core sections, the data sets being obtained from sensors are two-dimensional data

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sets and are indicative of a boundary, or interface of earth formations and of dip in the vicinity of the borehole, wherein two-dimensional data sets to be depth matched are obtained at different times for the same borehole (col. 8, lines 3-11).

Referring to claim 18, Kerzner discloses a method for matching a plurality of data sets from boreholes or core sections, the data sets being obtained from sensors are two-dimensional data sets and are indicative of a boundary, or interface of earth formations and of dip in the vicinity of the borehole, wherein a two-dimensional data set to be depth matched is obtained from a core section (figure 1).

As to claim 19, Kerzner discloses a method for matching a plurality of data sets from boreholes or core sections, the data sets being obtained from sensors are two-dimensional data sets and are indicative of a boundary, or interface of earth formations and of dip in the vicinity of the borehole, wherein each of the sensor signals is obtained from a sensor of a plurality of sensors 23-26 (figure 1).

Allowable Subject Matter

Claims 1-5 and 9-15 are rejected to upon a 101 rejection, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reason for allowance of claim 1 is the inclusion of transforming the two-dimensional data sets into three-dimensional images using the Hough transform; deriving two dimensional curves from the three-dimensional images by the application of the Hough transform to depth derivatives of sensor signals; and depth matching the two dimensional data sets to each other by

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applying the offset to the two dimensional data sets. Kerzner does not teach or suggest using the Hough transformation.

The reason for allowance of claim 2-5 and 9-15 is they depend on allowable claim 1.

Allowable Subject Matter

Claim 8 is objected to as being dependent upon a rejected base claim and 101 rejection, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reason for allowance of claim 8 is the inclusion of computing bedding dips is performed by Hough transform.

Response to Arguments

Applicant's arguments filed 11/7/06 have been fully considered but they are not persuasive.

Referring to claim 6, Applicant argues that "Therefor, an activity function in the meaning of Kerzner is not an average signal of a two-dimensional data set as described in the method of the invention."

Answer: Kerzner discloses " $r_{\text{bar}}(d)$ is the signals arithmetic average of the log over N samples at depth d." (col., 8, lines 61-64)

Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M. Le whose telephone number is (571) 272-2276. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Toan Le

January 17, 2007


John Barlow
Supervisory Patent Examiner
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